CIRC ACCESSION NO--AP0142716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TINE LEAD (TYPE POS-40) AND
LEAD SILVER (TYPES PSR3, PSR 2.5, AND OTHERS) ALLOYS USED FOR SOLDERING
ELECTRICAL JOINTS DO NOT SATISFY THE REQUIREMENTS FOR CORROSION IMMUNITY
IN TROPICAL CLIMATES. AFTER TRYING VARIOUS OTHER ALLOYS IN AN EFFORT TO
FIND ONE RESISTANT TO CORROSION, THE AUTHORS EXPERIMENTALLY FOUND AN
ACCEPTABLE SUBSTITUTE FOR POS4P WHICH USES A TIN BASE (TYPE VPR9) WITH A
MELTING POINT OF 220-250DEGREES, ALLOYED WITH SILVER, COPPER, AND
ANTIMONY. FROM THE VIEWPOINT OF TECHNICAL CHARACTERISTICS, THERE IS
LITTLE DIFFERENCE BETWEEN THE OLD POS40 AND THE MORE RESISTANT VPR9
ALLOYS. OTHER COMPARISONS OF THE TWO ARE SHOWN IN TABULAR FORM, AND TWO
PHOTOMICROGRAPHS OF THE VPR9 STRUCTURE ARE PRESENTED. THE VPR6, ANOTHER
SOLDERING ALLOY FOR OPERATING IN TROPICAL CLIMATES, IS COMPARED WITH THE
PSR3 TYPE AND IS FOUND TO BE MORE RESISTANT TO THE RAVAGES OF LOW AS
WELL AS HIGH TEMPERATURES. BOTH THE VPR6 AND VPR9 ARE DESIGNED FOR
SOLDERING JOINTS OF COPPER AND BRASS UNDER ALL CLIMATIC CONDITIONS
WITHOUT THE NEED FOR PROTECTIVE LACQUER COATINGS. THE VPR6 HAS A
SLIGHTLY HIGHER MELTING POINT THAN THE VPR9.

USSR

UDC 621.791.35:66.018.83

GUBIN, A. I., Candidate of Techni.. . Sciences, and DOBKINA, YE. N., Engineer

"Corrosion-Resistant Low-Temperature Solders"

Abstract: A description is given of two tin-based solders having optimal composition. The VPr 9 solder, alloyed with silver, copper, and antimony, having a 220-250°C melting temperature, is designed to replace the tin-lead POS-40-type solder. The VPr6 solder, alloyed with silver and antimony and having a 245-275°C melting temperature, is designed to replace the lead-silver PSr-3-type solder. The physico-mechanical properties of both new solders are presented in tables. Both solders have great strength, high heat and electric conductivity and low specific weight. Although their plasticity is lower than that of the POS-40 and PSR-3 solders, the new solders can be cold-processed by pressure and produced in the form of wire or strip. After six months, the new solders exhibited a mild corrosion in comparison with other solders. It is concluded that the VPr9 and VPr6 solders can be used effectively for soldering copper and brass junctions under all climatic conditions, without the need for additional protection by paint and varnish coating.

1/1

USSR

UDC   621.311.21:621.221.4(47+57)

GUBIN, F. F.

"Pumped-Storage Electric Power Plants -- Problems of their Design and Construction in the USSR"

Sb. tr. po gidrotekhn. i gidrostr-vu (Collected works on Hydroengineering and Hydraulic Construction), Moscow, Nauka Press, 1970, pp 171-191 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 D75)

Translation: The concept of overconsumption of fuel when operating GAES [pumped-storage electric power plants] by comparison with direct coverage of the load peaks by the TES [thermal electric power plants] is inaccurate. It is demonstrated that the overconsumption of fuel when using GAES will not occur if the ratio of the specific fuel consumption when operating the thermal electric plants at peak load and during the night off hours with full double cycle efficiency of the GAES $\eta = 0.75$ is greater than 1.23, and for $\eta = 0.70$ it is greater than 1.32 (it is necessary to study the specific fuel consumption when operating the TES in various parts of the day chart). The structure of the power systems must be planned so that for operation of the TES and especially the AES, optimal conditions will be insured with minimum load

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USSR

GUBIN, F. F.,Sb. tr. po gidrotekhn. i gidrostr-vu, Moscow, Nauka Press, 1970, pp 171-191

variations. This improves the operating reliability of the TES equipment, increases the service life of this equipment and lowers the number and cost of repair operations. Consideration of the GAES as an inferior peak power source is unfounded: the free capacity of the TES during the night hours can be used with very small additional fuel expenditures, actually providing for saving of it. Equalization of the day load of the TES at the expense of the GAES gives a decrease in TES load variation from 60 to 28%, and with further increase in GAES power, to 12% (for other types of peak electric power plants a drop greater than 35% cannot be obtained). In the USA, the Federal Republic of Germany and Sweden, specific capital investments in GAES are found to be lower than in the equivalent TES. For comparison, it is necessary to consider the expenditures by the construction norms. Favorable results are noted in designing GAES with an underground afterbay obtained in Sweden for capacities up to 800 megawatts and at the MISI [Moscow Construction Engineering Institute] imeni V. V. Kubyshev for P = 2,000 megawatts when H = 300-500-800 m. A number of recommendations are made insuring improved economy of the GAES. There are 8 illustrations.

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UR 0482

AAC052688

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 9-70

244578 GANTRY CRANE comprising trolley with
polyspast hoist mechanism has the polys-
pasts set horizontally and symmetrically about the
lateral axis of the trolley. This increases the
height to which the load can be lifted. The crane
consists of a rigid rectangular frame 1 with
running wheels 2, driven by electric motor 3 via
reduction gear 4 and pivoted shafts 5. The
trolley is in the form of bearing beam 6 with
running wheels 7 driven by electric motor 8 via
reduction gear 9 and shafts 10. The hoist
mechanism with two load suspensions is made in
the form of two horizontal polyspasts. The fixed
pulleys 12 are set at the edges of the trolley,
and the moving pulleys 13 are connected to running
nuts, moving in guide beams 6 along a screw
driven by electric motor 16 via a reduction gear
Traction cables 18 pass round the fixed and moving

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AA0052688

pulleys. When motor 16 is switched on the screw
is rotated via its reduction gear. Due to its
two-way thread, the nuts are moved opposite ways,
thus moving apart or together the moving pulleys
13, shortening or lengthening the freely hanging
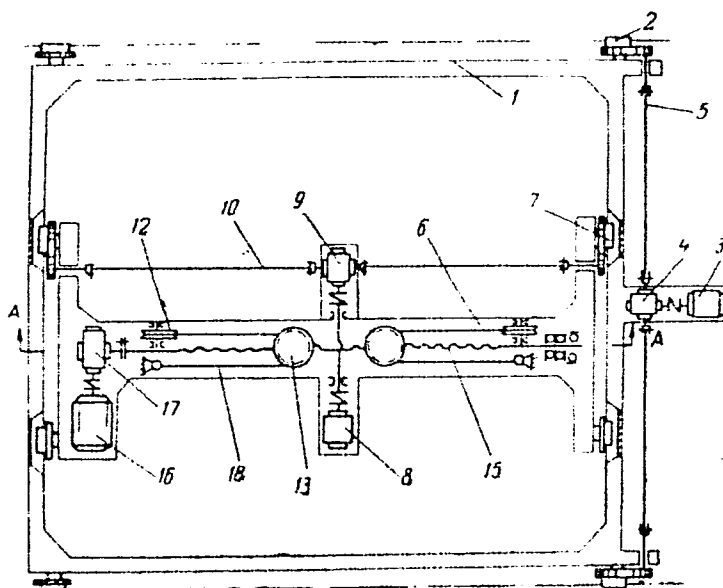suspensions on pulleys 12.
29.12.64. as 936420/27-11, GUBIN, I.P. et al.
Eastern Mining Res. Inst. (8.10.69) Bul.
18/28.5.69. Class 35b, Int. Cl. B 66c.

Gubin, I.P.; Sed'ko, A.P.; Bukhtin, V.S.; Lyubkin, A.P.;
Goncharova, M.A.;   Vostochnyy Nauchno-Issledovatel'skiy
Gornorudnyy Institut

19821470

AA0052688

3/3

19821471

USSR

VDOVIN, YU.A., GHEIN, ..., ..FRAGHTER.., V.K.; ..., ..

"Mode Competition At S_{gg}—3_{p4} Neon Transition In A Laser With Methane Absorption Cell"

Kvantovaya elektronika (Quantum Electronics), ...

Abstract: Previous papers of which Gubin and Protsenko ... ... on the obtainment of contrasting peaks of power and frequency stabilization in a helium-neon generator at the junction S_{gg}—3_{p4} (λ = ... microns) with a methane absorption cell. The high degree of contrast and saturation are obtained by virtue of the use of the effect of ... ... symmetrically with reference to the amplification line. ... ... studies the behavior of the intensity of one of the ... ... with an absorption cell as ... orthogonal polarization ... ... The ... the width and position of the narrow peak of power ... to the center ... the absorption line are determined. 4 ref. ... ..., ...

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USSR   UDC 537.521

BASOV, N. G., Academician, BELENOV, E. M., VOL'NOV, M. I., GUBIN, M. A.,
DANILEYKO, M. V., and NIKITIN, V. V., Physics Institute imeni P. N. Lebedev,
Academy of Sciences USSR, Moscow

"On the Question of Generating a Stabilized, Ring-Resonator Laser
Frequency"

Abstract: The power resonances of a ring laser can be considerably narrower
and more contrasting than in the case of a linear laser. They are based on
more complex effects, and the coincidence of the center of the resonances
with the central absorption frequency is not obvious. The article studies
this question theoretically and experimentally. It is shown that, as in the
case of a linear laser, the power resonances of a ring laser occur at the
central frequency of the absorbing gas.

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ALEKSEYEV, V. A.; BASOV, N. G., Academician; BELENOV, E. M.;
DANILEYKO, M. V.; VOL'NOV, M. I.; GUBIN, M. A.; NIKITIN, V. V.;
TROSHAGIN, V. N.; P. N. Lebedev Physics Institute, Moscow

"Spectroscopy Inside a Uniform (Radiation) Line"

Abstract: A method is proposed and realized for finding the shift,
2Δ, between the spectral components of a line in the radiation of
atoms or molecules, and in such cases when the 2Δ value is much
less than the uniform or radiation width. The method is based on
the concurrence of spatial and frequency attenuation effects of
the medium in a ring laser. The dependence of the qualitatively
different oscillation modes of the laser on the frequency differ-
ence Δ permits recording the presence of the Doppler broadening
of the line for Δ by an amount much less than for the uniform
width. It is found that, from the viewpoint of the accepted cri-
terion of spectral line resolution, the sensitivity of the
proposed method can be multiplied by 10^2-10^4 times. The theory of
the method is developed, and an experiment for resolving the fine
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USSR

ALEKSEYEV, V. A., et al, Doklady Akademii Nauk SSSR, vol 207, No 6, 1972, pp 1306-1307

structure of the line, conducted with a laser containing a mixture of Ne^{20} and Ne^{22}, is described.

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USSR

UDC: 621.375.82

VDOVIN, Yu. A., GONCHUKOV, S. A., GUBIN, M. A., YERMACHENKO, V. M.,
ORAYEVSKIY, A. N., PROTSENKO, Ye. D.

"Effect of Atomic Collisions and Capture of Resonance Emission on the Character-
istics of Gas Lasers"

Moscow, Vliyaniye atomnykh stolknoveniy i pleneniya rezonansnogo izlucheniya
na kharakteristiki gazovykh lazerov. Fiz. in-t AN SSSR (cf. English above.
Physics Institute of the Soviet Academy of Sciences), Preprint No 116, 1972,
57 pp, ill., mimeo. (from RZh-Fizika, No 8, Aug 73, abstract No 8D1000 /resume/

Translation: Polarization of a medium is calculated with accuracy to and includ-
ing third-order terms for the field with simultaneous accounting for depolarizing
collisions and capture of resonance radiation in the case of one-mode and two-
mode gas laser emission. Results are found for several working transitions
different from one another in the moment of the lower level and also for dif-
ferent polarizations of the emitted modes. A detailed study is made of the
variation, with pressure, of different physical quantities in laser operation in
the one-mode and two-mode state. A comparison is made between experimental and
theoretical results obtained in computer calculations. In order to clarify the
qualitative behavior of different characteristics, the authors find an approxi-
mation of their analytical expressions. Bibliography of 17 titles.
1/1

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USSR   UDC   621.378.33

GUBIN, M. A., POPOV, A. I., PROTSENKO, Ye. D.

"Investigation of Competition Between Two Axial Modes in a Laser With a
Uniformly Broadened Line"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 4, "Sovetskoye Radio",
1971, pp 34-40

Abstract: A simple experimental method is used in a detailed study of the
mechanism of interaction between two optical fields in a helium-neon laser,
taking the 3.39-micron transition of the $3s_2-3p_4$ line in neon as the model
for a uniformly broadened transition. A number of supporting facts are
given to demonstrate uniformity of broadening on this transition. An in-
vestigation was made of the region of stable two-frequency emission as a
function of the working parameters of the laser. The transition from two-
frequency to single-frequency emission as the competing modes approach
each other was studied. In contrast with solid-state lasers, where the
effects associated with the dip formed in a homogeneous line in the event
of monochromatic field saturation are masked by spatial nonuniformity of
the inversion, these effects can be observed in pure form on the 3.39-u

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USSR

GUBIN, M. A. et al., Kvantovaya Elektronika, No 4, "Sov Radio", 1971, pp 34-40

transition in the He-Ne laser. The observed effects are explained by a simple physical model which utilizes this phenomenon of formation of the dip in the uniformly broadened line as a result of the saturating field effect. From the qualitative standpoint, the effects can be generalized to other lasers with a uniform line when the condition $T_2 < T_1$ is satisfied (where T_1 and T_2 are the times of longitudinal and transverse relaxation respectively), assuming that stagnation of the light fields of the competing modes has no effect on the spatial distribution of the inversion. The process of field interaction on the 3.39-micron line is of practical interest in connection with development of frequency standards of high stability, as well as other devices which utilize the sharp frequency dependences of laser power. Five figures, bibliography of twenty-two titles.

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Heat, Combustion, Detonation

USSR

UDC:534.222.2

BORISOV, A. A., GEL'FAND, B. Ye., GUBIN, S. A., KLOGARKO, S. M., PODGREBENKOV, A. L., Moscow

"Reaction Zone Upon Detonation of Two-Phase Mixtures"

Abstract: This work presents a study of the nature of the change in thermodynamic and gas-dynamic parameters of a gas-liquid combustion mixture in the reaction zone of the detonation wave. The purpose of the investigation was estimation of the size of the zone of heat liberation beyond the wave, the criterion which determined the possibility of stable propagation of detonation. Calculation of the changes of parameters of a two-phase mixture upon heterogeneous detonation performed using two different mechanisms of transition of the liquid phase to the gas phase showed the following: 1) breakup of droplets significantly intensifies the combustion of the liquid in comparison with the evaporation process;

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USSR

UDC:534.222.2

BORISOV, A. A., GEL'FAND, B. Ye., GUBIN, S. A., KLOGARKO, S. M.,
PODGREBENKOV, A. L., Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No.
3, Sep 70, pp. 374-385

2) a detonation model constructed on the assumption that the rate of com-
bustion of the two-phase mixture is determined by the rate of drop
breakup apparently gives the correct value of reaction zone length; 3) the
length of the reaction zone during heterogeneous detonation is decreased
sharply with decreasing average liquid drop size; 4) the energy loss to
drop acceleration in the reaction zone is slight; and 5) full calculation
of the reaction zone with heterogeneous detonation of droplets of at
least 100 μ diameter must be performed considering deformation and
breakup of the droplets.

2/2

1/2   058   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--AMPLIFICATION OF WEAK SHOCK WAVES IN A BURNING TWO PHASE LIQUID GAS
  SYSTEM -U-
AUTHOR-(05)-BORISOV, A.A., GELFAND, B.YE., GUBIN, S.A., KOGARKO, S.M.,
  PODGREBENKOV, A.L.
COUNTRY OF INFO--USSR

SOURCE--PMTF ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI,
  JAN.-FEB. 1970, P. 168-173
DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--SHOCK WAVE, COMBUSTION R AND D, KEROSINE, OXYGEN, COMBUSTION
  RATE, MACH NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1550   STEP NO--UR/0207/70/000/000/0168/0173

CIRC ACCESSION NO--AP0118533
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118533

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE SPECIAL FEATURES OF THE INTERACTION BETWEEN WEAK SHOCK WAVES AND BURNING DROPLETS OF LIQUID FUEL (KEROSENE) IN AN ATMOSPHERE OF GASEOUS OXYGEN. IT IS FOUND THAT THE AMPLIFICATION OF WEAK SHOCK WAVES IN THE MACH NUMBER RANGE FROM 1.1 TO 1.3 IN A REACTING TWO PHASE LIQUID DROPLET GAS MIXTURE OCCURS AS A RESULT OF A SHARP INCREASE IN THE MASS COMBUSTION RATE OF THE FUEL OWING TO ATOMIZATION OF THE DROPLETS. THE INCREASE IN THE MASS COMBUSTION RATE BEHIND THE SHOCK FRONT LEADS TO AN INCREASE IN HEAT GENERATION AND TO THE FORMATION OF A COMPRESSION WAVE WHICH OVERTAKES THE LEADING EDGE OF THE SHOCK WAVE.

UNCLASSIFIED

USSR

UDC 532.593

GEL'FAND, B. Ye., GUBIN, S. A., KOGARKO, S. M., Moscow

"Amplification of Shockwaves with Triangular Pressure Profile in a Hot, Two-Phase Medium"

Abstract: Earlier works have established the parameters of compression waves with rectangular pressure-change profile beyond the leading edge of the wave necessary to produce an unstable combustion mode when these waves interact with a flammable two-phase, gas-liquid medium. The case of the interaction of arbitrary compression waves with a hot two-phase medium is more difficult to study but more interesting for practical purposes. This article presents a study of this condition, involving the interaction of shockwaves with variable parameters (pressure and velocity) behind the leading edge with a heterogeneous combustible system. The results produced in the earlier works concerning the parameters of critical perturbations of pressure are compared with those produced in the present work. It is found that amplification of compression waves with a triangular profile of pressure change is possible if the intensity of the waves is greater than a certain critical intensity.

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113448g Mechanism of the formation of a compression wave behind a weak shock wave front propagating in a combustible two-phase mixture. Borisov, A. A.; Gel'fand, B. E.; Gubin, S. A.; Kogarko. S. M.; Podgrebenkov, A. L. (Inst. Khim. Fiz., Moscow, USSR). Dokl. Akad. Nauk SSSR 1970, 190(3), 621-4 [Phys Chem] (Russ). · The formation of a compression wave behind a weak shock front (Mach no. = 1.05–1.3) was studied in a shock tube contg. kerosine droplets in a N-O atm. Drop sizes of 0.5 and 2 mm were used. The gas phase varied (30–70% N) and initially was at 1 atm and 25° before introduction of the shock wave. The formation of the compression wave and its redistribution in the shock wave were followed by pressure recordings. The principal reason for the formation of a compression wave is the breaking down of the fuel droplets. This occurs in 2 stages. Initially, ~10% of the drops break into 100 μ droplets because of a collapse of the surface of the coarse drops. These fine drops quickly vaporize. The final stage is a flattening of the drops by the pressure of the gas stream, followed by a complete breakup into fine droplets. The formation of the compression wave depends primarily on the mixt. compn., the drop size of the fuel, and the intensity of the initial pressure of the shock wave.
E. E. Toops, Jr. _

REEL/FRAME
19841556

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USSR   UDC 537.533.3+537.534.3:621.38.032.269

KOL'TSOV, O. A., GUBIN, S. F.

"An Analyzer of Electron Beam Structure"

V sb. Progressivn. tekhnol. i novoye oborud. dlya proiz-va elektron. priborov (Progressive Technology and New Equipment for the Electronics Instrument Industry -- Collection of Works), Saratov, 1970, pp 59-62 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12Zh687)

Translation: An analyzer is developed which can measure the distribution of current density and the transverse components of electron velocities in beams of diameter 20 mm and of length up to 50 mm in continuous (accelerating voltage $U \leq 1.5$ kv) and pulsed ($U \leq 15$ kv) modes. A. Zh.

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Organometallic Compounds

USSR

GUBIN, S. P.

"V International Congress of Metal Organic Chemistry"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I. Mendeleyev, Vol 17, No 2, 1972, pp 206-214

Abstract: The V International Congress of Metal Organic Chemistry took place in Moscow from the 16 to 21 August, with 885 scientists attending. A. NORMAN reviewed the work in France on magnesium organic compounds since Grignard; DUCOMB talked about the structure of Grignard's reagents in hexametapole. CAVANAUGH et al, reported on laser Raman spectroscopy studies of dimethyl- and diethylmagnesium, and TAMBORSKI, SMITH, and MOORE discussed the synthesis and reactions of pentabromophenyl magnesium compounds. Synthesis of five and six membered heterocycles containing magnesium was discussed by HOLDCAMP, BLOMBERG, and BICKELHAUPT, while papers by TUULMETS and by HAHN and KROSSLAND were devoted to the reaction mechanisms of Grignard's reagents. FAVORC reported on a slow reaction between diethylzinc and fluorenone, and SET and EWERLING on their synthesis of HMgX and HgMg hydrides. Structure and reactivity of organic derivatives of electronic analogues of magnesium was the subject of the paper by SHEVERDINOVA, N. I., and coworkers. Lithium organic
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USSR

GUBIN, S. P., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imoni D. I. Mendeleyev, Vol 17, No 2, 1972, pp 205-214

compounds were discussed by JUTZI, SCHREDER, and FRANK, and by GLASE, HAINICHEK, CHANTHURY, and BERRY. BELETSKAYA, I. P., indicated the possibility of the ionization of R-Hg bond in cases where R contains strong electron accepting substituents. BUNDEL', NIKANOROV, and ROZENBERG studied protodemethylation in a series of benzylmercurichlorides, and SHEFFOLD, MICHELL, and LELIGER investigated conditions for introduction of a methylene group between the Hg-I bond in benzylmercuriiodide. Papers by KRAVTSOV, and coworkers, and VAN DYKE et al. covered the problems of coordination of metalorganic compounds of the II and IV group p-donor ligands. Stereochemistry and optical activity of metalorganic compounds were discussed by MOHTAR-JAMAN et al., and SARTORI et al. HERBERICH, GREIS, and HEIL covered boron-organic compounds reporting on the synthesis of π-complexes of boron-aromatic anion. Ferrocene type of structures were discussed by CERKHELL et al., SAZONOV and coworkers and ROZENBERG and HEDBERG. SHEETS selected the subject of stabilization of the negative charge by the nucleus of cobalticenium while VAN COTEN et al. reported on the synthesis of stable copper and silver organic compounds in which the ortho substituent of the phenyl group acts as the stabilizing factor. Another

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USSR

GUBIN, S. P., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I.
Mendeleyev Vol 17, No 2, 1972, pp 205-214

paper on stable copper and silver compounds was given by SAZONOV and co-
workers. Aromatic copper derivatives were also synthesized by KOBERG et al.
HUTTEL and FUHRL reported on the properties of Au(I) and Au(II) complexes
with various alkynes. PEREVALOVA, and GRANDBERG reported a synthesis of novel
gold organic compounds. MARTINENKO et al. discussed mixed carbonyls, YAMAZAKI
and YASUFUKI talked about the synthesis of transition metal complexes,
FARENKAMP and ERL -- on the carbonyl complexes in which the metal atoms are
bound by a bridge atom of a Lewis base; EISNER et al. -- on heterocyclic
carbonyl compounds with Fe-Sb and Fe-Bi bonds, KIBL and KILMER -- on molyb-
denum and tungsten carbonyl complexes, and KASKA and MITCHELL -- on novel
tungsten carbonyl complex. Carbene complexes with palladium were discussed
by KROCHIANI and coworkers, EIBL and KARDIN ET AL. Catalysis of transition
metal complexes were covered by ATTRIDGE and MADDOCK, BINGER and IMANAKA, et
al. JENNINGS and coworkers studied catalytic effect of transition metal com-
plexes on dimerization of norbornadiene, KEYS and FRENKEL showed that
arenchromocarbonyl complexes are effective catalysts for heterogenic hydro-
genation of norbornadiene and KUMADA et al. reported on catalytic action of

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USSR

GUBIN, S. P., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I.
Mendeleyev Vol 17, No 2, 1972, pp 206-214

divalent nickel complexes with ditertiary phosphines. Mechanism of olefine
formation from allyl alcohols was covered by BEZOMBA et al., while BOGDANOVICH
and coworkers reported on catalytic effect of nickel π-allyl halides modified
with organic phosphines. The subject of UNGVARY et al was "Kinetics and
mechanism of the reaction of cobaltoctacarbonyl with hydrogen". Activation of
saturated hydrocarbons with transition metal complexes was discussed by GOLD-
SHLEGER et al. A plenary lecture given by SEBORG concerned the progress in
the area of metalorganic actinides. DORETTI et al. reported synthesis of
cyclopentadienyl derivatives of U (IV), and AMMON and KANELLACOPOULOS in-
vestigated H'-NMR spectra of tetracyclopentadienyl complexes of Th (IV) and
U (IV) in the temperature range -100 to +100°.

4/4

GUBIN, S.P.

metalloorganic Chemistry

CONGRESS ON METALLOORGANIC CHEMISTRY

The Fifth International Congress on organization in ... as ... with the collaboration of the International Union of ... ... radical and Applied Chemistry, was held in Moscow on 16-21 ...

Opening the Congress, the chairman of the Organizing Com... mittee, Academician A. N. Nesmeyanov, said "I welcome the participants in the Fifth International Congress on Metalloorganic Chemistry -- the active builders of the bridge which connects organic and inorganic chemistry."

Participating in the work of the Congress were 595 scien... tists from 25 countries. Seven plenary reports and 11 section... lectures were heard. In addition, 459 brief ... the conditions of the time presented in the form of abstracts ... ... were read, of about 40%.

The Congress was held in the year marking the 100th an... niversary of the birth of the outstanding French chemist ...

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1/2   021   UNCLASSIFIED   PROCESSING DATE--23OCT70

TITLE--CIS AND TRANS,BETA,SUBSTITUTED ALPHS,VINYLFERROCENES. CONFIGURATION
  OF TRISUBSTITUTED EHTYLENES -U-

AUTHOR-(02)-KORIDZE, A.A., GUBIN, S.P.

COUNTRY OF INFO--USSR

SOURCE--J. ORGANOMETAL. CHEM. 1970, 22(1), 157-69

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FERROCENE, ETHYLENE, NITRILE, THIN LAYER CHROMATOGRAPHY,
  PROTON, MAGNETIC RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0616   STEP NO--NE/0000/70/022/001/0157/0169

CIRC ACCESSION NO--AP0119528
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0119528

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A CONVENIENT APPROACH TO THE
   NITRILES OF ALPHA,BETA,UNSATO. FERROCENECARBOXYLIC AND 1,1
   PRIME-FERROCENEDICARBOXYLIC ACIDS HAS BEEN WORKED OUT.   IT INVOLVES THE
   CONDENSATION OF ACYLFERROCENES WITH MECN AND SUBSEQUENT DEHYDRATION OF
   THE BETA,HYDROXYNITRILES PRODUCED.   ISOMERIC UNSATO. NITRILES WERE
   ISOLATED IN SOME SES, AND WERE SEPD. BY THIN LAYER CHROMATOG.   THEY
   DISPLAYED SUBSTANTIALLY DIFFERENT ALPHA(H SUB2,5) PROTON SHIELDINGS IN
   THE SUBSTITUTED CYCLOPENTADIENYL RING.   THIS PHENOMENON WAS USED FOR
   ELUCIDATING THE CONFIGURATIONS OF SOME ALPHA-VINYLFERROCENES TRIPLY
   SUBSTITUTED AT THE DOUBLE BOND.   FORMAL REDOX POTENTIALS WERE DETD. FOR
   ALPHA-VINYLFERROCENES CONTG. NO SUB2, C IS IDENTICAL TO N, AND AC GROUPS
   IN THE BETA POSITION.   THESE DATA, TOGETHER WITH THOSE OF PMR AND THE R
   SURF VALUES OBTAINED MAY BE EMPLOYED FOR THE ASSIGNMENT OF ISOMERS TO
   THE CIS OR TRANS SERIES.   FACILITY: INST. ORGANO ELEM. COMP.,
   MOSCOW, USSR.

UNCLASSIFIED

1/2   021   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--ELECTRONIC INFLUENCE OF RUTHENOCENYL AS SUBSTITUENT -U-

AUTHOR-(02)-GUBIN, S.P., LUBOVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--J. ORGANOMETAL. CHEM. 1970, 22(1), 183-94

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FERROCENE, RUTHENIUM COMPOUND, METHANE, CARBOXYLIC ACID,
    ELECTRON DENSITY, CARBONYL RADICAL, ELECTRON POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1990   STEP NO--NE/0000/70/022/001/0183/0194

CIRC ACCESSION NO--AP0112954
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0112954
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FERROCENYLRUTHENOCENYLMETHANE WAS
PREPD. IN ORDER TO EST. QUANT. THE ELECTRONIC INFLUENCE OF RUTHENOCENYL
AS SUBSTITUENT.   THE FORMAL REDOX POTENTIAL OF THE FERROCENYL NUCLEUS
IN THIS COMPD. WAS DETD.; THE PK SUBA OF RUTHENOCENYLCARBOXYLIC ACID WAS
MEASURED IN 50PERCENT ETOH AND THE CO STRETCHING FREQUENCY AND BASICITY
OF ACETYLRUTHENOCENE WERE ALSO FOUND. THE VALUES OBTAINED WERE USED IN
THE CALCN. OF THE SIGMA SUBI, SIGMA SUBP, AND SIGMA SUBP POSITIVE
CONST., OF RUTHENOCENYL AS A SUBSTITUENT. CHANGES IN THE REACTIVITIES
OF THE 5 MEMBERED AROMATIC RINGS ARE ASSOCD. WITH THE CHANGE IN
EFFECTIVE CHARGE ON THE RING C ORBITALS. WHEN PASSING FROM FERROCENE TO
RUTHENOCENE, WHEREAS THE PI ELECTRON D. AT THE RINGS AND ITS
POLARIZABILITY REMAINED UNALTERED.   FACILITY: INST. OF
ORGANO-ELEM. COMP., MOSCOW, USSR.

TITLE--EFFECT OF COORDINATION WITH THE METAL ON THE REACTIVITY OF PI
   BONDED ORGANIC LIGANDS. III. CHANGES OF THE ELECTRONIC EFFECT OF THE

AUTHOR-(02)-GUBIN, S.P., KHANDKAROVA, V.S.

COUNTRY OF INFO--USSR

SOURCE--J. ORGANOMETAL. CHEM. 1970 22(2) 449-60

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FERROCENE, CHROMIUM COMPOUND, CARBONYL RADICAL, METHANE,
   ELECTROLYTIC OXIDATION, PLATINUM ELECTRODE, POTENTIOMETRIC TITRATION,
   COORDINATION CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1559   STEP NO--NE/0003/70/022/002/0449/0460

CIRC ACCESSION NO--AP0112553
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0112553
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.
FERROCENYLPHENYLCHROMIUMTRICARBONYLMETHANE (I) AND
FERROCENYLPHENYLCHROMIUM TRICARBONYL (II) WERE PREPD. THE POLAROGRAPHIC
OXIDN. OF I AND II ON A PT ELECTRODE IN MECN WAS INVESTIGATED AND THE E
SUBFO OF I WAS DETD. BY A POTENTIOMETRIC TITRN. A SET OF SIGMA CONSTS.
WAS CALCD. FOR THE (CO) SUB3 CRPH GROUP AS SUBSTITUENT. ANAL. OF THE
RESULTS OBTAINED LED TO THE CONCLUSION THAT A CONSIDERABLE CHANGE OF
EFFECTIVE POS. CHARGE ON THE SIGMA ORBITALS OF THE AROMATIC RIGN CARBONS
TOOK PLACE UPON COORDINATION WITH THE (CO) SUB3 CR GROUP.

1/2   020   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--EFFECT OF COORDINATION WITH THE METAL ON THE REACTIVITY OF PI
   BONDED ORGANIC LIGANDS. II. REVERSIBLE POLAROGRAPHIC REDUCTION OF
AUTHOR-(02)-KHANDKAROVA, V.S., GUBIN, S.P.

COUNTRY OF INFO--USSR

SOURCE--J. ORGANOMETAL. CHEM. 1970, 22(1), 149-52

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLAROGRAPHY, ACETOPHENONE, CHEMICAL REDUCTION, CHROMIUM
   COMPOUND, COMPLEX COMPOUND, DROPPING MERCURY ELECTRODE, MOLECULAR
   ORBITAL, ELECTRON DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1978   STEP NO--NE/0000/70/022/001/0149/0152

CIRC ACCESSION NO--AP0112942
                         UNCLASSIFIED

2/2   020
CIRC ACCESSION NO--AP0112942
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REVERSIBLE POLAROGRAPHIC REDN.
OF ACETOPHENONE (I), FREE AND COORDINATED WITH THE CR(CO) SUB3 GROUP IN
APROTIC MEDIA WAS INVESTIGATED. THE ANALOGY BETWEEN THE POLAROGRAPHIC
DATA FOR COORDINATED AND NONCOORDINATED I LEADS TO THE CONCLUSION THAT
THE ELECTRONIC D. CHANGES IN THE I PART OF THE COMPLEX DURING THE REDN.
ON THE DROPPING HG ELECTRODE. COORDINATION WITH CR(CO) SUB3 IS LIKELY
TO DECREASE THE ENERGY OF THE LOWEST UNOCCUPIED MO OF I BY LARGER THAN
0.5 EV.   FACILITY: INST. ORGANO-ELEM. COMP., MOSCOW, USSR.

Alkaloids

USSR   UDC 615.322:547.944.3].07.

SIMON, I. S., PLETNEVA, T. A., GUBINA, P. H., and SHOSTENKO, YU.
V., Khar'kov Scientific Research Institute of Pharmaceutical
Chemistry

"Methods for Controlling the Production of Atropine Sulfate.
III. Determination of the Total Tropane Alkaloids in Scopolia
Roots and Intermediates of the Production of Hyoscyamine by the
Method of Nonaqueous Titration"

Moscow. Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70,
pp 58-60

Abstract: The production of commercial hyoscyamine from the
roots of Caucasian Scopolia requires stage-by-stage control and
determination of the yields in the extraction, sorption and de-
sorption stages. Since the sum total of the alkaloids are ab-
sorbed from the aqueous extract during sorption and the desorp-
tion process likewise ends with elution of the total alkaloids

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USSR

SIMON, I. S., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70,
pp 58-60

from the cation exchanger, such control can be based on a determination of
the total alkaloids without the isolation of hyoscyamine and atropine. The
authors suggest the following scheme for the analysis of acid aqueous extracts
from Sopolia roots: 1) extraction of alkaloids from an alkalized aqueous
solution with ether; 2) drying of the ether solution; 3) distilling off of
the ether under vacuum; 4) dissolution of the residue in chloroform; 5) uening
of the chloroform solution; 6) titration of the chloroform alkaloid solution
with 0.1 N. perchloric acid solution. A solution of pure hyoscyamine in an
0.25 percent sulfuric acid solution was analyzed to confirm the accuracy of
this scheme. The analysis results, interpreted by the method of mathematical
statistics, indicate a rather high accuracy for the scheme.

In an analysis of the extracts obtained from Sopolia roots and the fil-
trates after sorption, stable, indivisible emulsions occur in the conversion
of the sum total of the alkaloids from the alkalized aqueous phase to an
organic solvent. Pre-precipitation of the extracts and filtrates from the bal-
ast substances was therefore necessary. The authors used lead acetate,

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USSR

SIMON, I. S., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4,
No 9, Sep 70, pp 58-60

added to the extract in a 4:1 ratio, for this purpose. Since the
analysis scheme now also included precipitation of the ballast
substances, it was necessary to check the effect on the quanti-
tative results. A series of experiments was performed, using ad-
ditions of an alcoholic solution of pure hyoscyamine directly to
the extract, which was preliminarily analyzed by the method of
nonaqueous titration. Although the agreement between parallel
determinations was satisfactory, the introduction of the ballast
substance precipitation stage reduced the accuracy of the anal-
ysis due to the appearance of slight but systematic losses. The
scheme used for analysis of the extract is also used for quanti-
tative determination of the total alkaloids in the eluate, but
without pre-precipitation of ballast substances.

Satisfactory agreement is found between the analysis results obtained by
the authors' method and those obtained by the GOST [All-Union State Standard]
method, while root analysis time under the authors' scheme is half that of
the GOST method.

3/3

TITLE--KINETICS OF THE FIRST POSTRADIATION MITOSES DURING THE IRRADIATION
  OF A SYNCHRONOUS CULTURE OF SOTS CELLS IN VARIOUS PHASES OF THEIR LIFE
AUTHOR-(02)-GUBIN, V.A., KOMOLOV, I.S.

CCUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 152

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GAMMA RADIATION, RADIATION BIOLOGIC EFFECT, RADIATION DOSAGE,
  MITOSIS, RADIATION CELLULAR EFFECT

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1843   STEP NO--UR/0205/70/010/001/0152/0152

CIRC ACCESSICN NO--AP0127253
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0127253
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SYNCHRONOUS POPULATION OF SOTS
CELLS WAS GAMMA IRRADIATED WITH 500 R DURING VARIOUS PERIODS OF MITOSIS.
FORMATION OF INITIAL POSTIRRADN. MITOSES WAS ACCOMPANIED BY
PROLONGATION OF THE LIFE CYCLE. THIS EFFECT WAS MOST NOTABLE AFTER
IRRADN. OF CELLS DURING DNA SYNTHESIS.   FACILITY: INST. BIOFIZ.,
MOSCOW, USSR.

UNCLASSIFIED

USSR

BAZAROV, Ye. N., BIKETOV, V. D., GUBIN, V. P.

"Short-Term Instability of a Standard Based on a Rubidium Maser With Optical Pumping"

Abstract: An investigation is made of the short-term instability of a frequency standard with quartz-crystal AFC circuit using a maser on Rb^{87} vapor with optical pumping. Measurement errors are analyzed. It was found that instability in the region $\tau < 1$ s is determined by external additive receiver noise. Instability in the region $\tau > 1$ s is determined by temperature fluctuations in the dimensions of the cavity. Temperature compensation by a buffer gas should be used to improve stability at $\tau > 100$ s. The authors thank L. Z. Pososhenko for designing the electronic circuits of the frequency standard, and Ya. A. Yukhvidin for his interest in the work.

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Lasers/Masers

Abstract: A theoretical and experimental study is made of the operation of a
rubidium laser in the process of generation, with filling of its resonator with
nitrogen and mixtures of nitrogen--argon. The experiments were conducted on a
model of a rubidium laser, the construction of which is analogous to that des-
cribed by Ye. N. Bazarov and V.P. Gubin (Radiotekhnika i elektronika, 1969, 14,
6, 1045). However, in a given case, the magnitude of the coupling of the rubid-
ium laser with the load can be selected within certain limits with the aid of a
matching plate in the output waveguide. The resonator of the model was connect-
ed to a vacuum-pumping assembly which made it possible to evacuate it to a
pressure of 10^{-5} tor and to fill it with various gases. It is shown that with
a concentration of rubidium atoms considerably exceeding the threshold, the
limiting short-term stability of the rubidium laser does not depend on the para-
meters of the buffer mixture. The theoretical and experimental study conducted
shows the possibility of creating a rubidium laser with a small temperature
coefficient of the frequency, a large power of generation, and a high short-term
stability. The authors thank B.M.Glebov for help in preparing the experiment and
V.P.Zolin and E.I.Alekseyev for discussion of results.7 fig.12 ref.Received,8 Dec 70.
1/1

· USSR·

GUBIN, V. Ye., ISUPOV, Yu. G., ORESHINA, M. D., KHAZIYEV, N. N., SHEMYAKINA,
G. N.

"Free Convection in a Horizontal Cylinder"

Tr. VNII po Sboru, Podgotovke i Transp. Nefti i Nefteproduktov [Works of
All-Union Scientific Research Institute on the Collection, Preparation and
Transportation of Oil and Petroleum Products], No 8, 1971, pp 104-116,
(Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No
4 B647 by Ye. M. Zhukhovitskiy).

Translation: Free, unstable convection in an infinite horizontal circular
cylinder is studied. The wall temperature of the cylinder is maintained con-
stant and differs from the temperature of the fluid. The temperature dif-
ference and size of the cavity are assumed sufficiently great that convection
occurs in the boundary-layer mode. The problem is solved on the assumption
of quasistability of the process: it is considered that the structure of the
flow is determined at a given moment in time by the instantaneous temperature
difference between the walls and the fluid and is independent of the rate of
change of temperature with time.
    The equations for planar, stable convective motion in the boundary layer
approximation are solved by the Karman-Polhausen method. Laminar and turbu-
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USSR

GUBIN, V. Ye., ISUPOV, Yu. G., ORESHINA, M. D., KHAZIYEV, N. N., SHEMYAKINA, G. N., Tr. VNII po Sboru, Podgotovke i Transp. Nefti i Nefteproduktov, No 8, 1971, pp 104-116.

lent flow modes are studied. The velocity and temperature are approximated by polynomials. The Reynolds analogy is used in the turbulent case. The solution of the nonlinear systems of equations for the velocity and thickness of the boundary layer is produced by the method of power series using a longitudinal coordinate. Furthermore, an analytic solution in the area of large Prandtl numbers is found in the laminar case. The boundary layer characteristics and heat flow through the surface of the cylinder are calculated.

Results are presented from an experimental study performed using two models with diameters of 30.5 and 97.5 cm and lengths of 15 and 27 cm respectively. The working fluids were gasoline and distilled water. Processing of the experimental data produced on heat transfer produces the dependence $N = 0.340 (GP)^{0.25}$ in the laminar case and $N = 0.092 (GP)^{0.40}$ in the turbulent case (Nusselt number N and Grashoff number G defined through diameter of cylinder and temperature difference between wall and fluid; P is the Prandtl number). Heating time of the fluid is estimated.

2/2

TITLE--STATE OF ORGANOSILICON COMPOUNDS ON CELLULOSE FIBERS -U-

AUTHOR-(03)-GUBINA, S.F., SOLOVYEV, A.A., MELNIKOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHED. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 252-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ORGANOSILICON COMPOUND, CELLULOSE RESIN, IR SPECTRUM, NATURAL
  FIBER, UREA FORMALDEHYDE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0182   STEP NO--UR/0153/70/013/002/0252/0255

CIRC ACCESSION NO--AT0132459
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0132459
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF COTTON (I) CLOTH
  AND I CONTG. CARBAMOL (UREA HCHO RESIN) (II); (HESIETO) SUBN (III), OR
  II AND III SHOWED THAT II REACTS WITH III, GIVING IV DURING THE
  FINISHING OPERATION. THERE IS ALSO H BONDING BETWEEN II AND III.
   FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

TITLE--ATROPINE SULFATE -U-

AUTHOR-(04)-SHOSTENKO, YU.V., SIMON, I.S., GUBINA, T.A., PLETNEVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 229, 530
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--C1APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ATROPINE, CHEMICAL PURIFICATION, DRUG INDUSTRY, CHEMICAL
    PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1963/1007   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130112

2/2   009   UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0150112
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATROPINE SULFATE (I) WAS OBTAINED
   FROM TECH. HYOSCYAMINE BY RACEMIZATION IN ISO BUOH AND ISOLATING THE
   RESULTING ATROPINE BASE WITH TARTARIC ACID.   FACILITY: KHARKOV
   SCIENTIFIC-RESEARCH CHEMICAL-PHARMACEUTICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC 389.6:65.011.56:681.3.004.14

GUBINSKIY, A. I. and KOBZEV, V. V.

"Standardization of the Accounting of Human Factors at Various Stages of the Development of Control Systems"

Moscow, Nadezhnost' i Kontrol' Kachestva, No 8, 1973, pp 62-70

Abstract: Problems associated with the narrowly technical approach and the system approach to planning are defined at various stages in the development of control systems. It is shown that the solution of purely technical problems is insufficient in developing a control system. Problems pertaining to the accounting of "human factors" are correlated with the stages of planning. Ways of obtaining a practical solution of the problem of taking "human factors" into account are indicated. 1 table. 11 references.

1/1

USSR   UDC 629.12-52.019.3

GUBINSKIY, A. I., KOBZEV, V. V., GRECHKO, YU. P.

"Study of the Availability of Maritime Automated Control Systems"

Translation: The quantitative reliability criterion -- availability factor -- was obtained for nonredundant, repairable maritime automatic control systems with various functions performed in them by man. The reliability of the complex was investigated as a function of the degree of automation of the control system and the type of human activity in it. The expedient means of improving the reliability of the complex are demonstrated. There are 2 illustrations and a 2-entry bibliography.

1/1

USSR   UDC [537.226+537.311.33]:[537+535]

GUBKIN, A. N., NOVAK, M. M.

"Electric Fields of Electrets of Various Dielectrics"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine Building), 1970, No. 8, pp 96-107 (from RZh Fizika, No 12, Dec 71, Abstract No 12Yel154)

Translation: External electric fields of disc electrets of nine materials with different physicochemical and structural properties are investigated. A simple model of an electret is proposed on the basis of which the axial electric field is calculated and the results are compared with experimental results. A relationship was observed between the external field of the electret and the dielectric permeability of the material. It was shown that one can obtain fairly stable electric fields up to 1 kv/cm^2 at the surface of the sample with the aid of electrets in the form of a disc. Conclusions are made concerning the possibility of the practical application of electrets as electric field sources. 15 ref. Resume.

1/1

USSR

UDC [537.226+537.311.33]:[537+535]

GUBKIN, A. N.

"Residual Polarization in Titanates of Metals of Group II of the Periodic System"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine Building), 1970, No. 8, pp 79-95 (from RZh Fizika, No 12, Dec 71, Abstract No 12Yell53)

Translation: The residual polarization in titanates of calcium, magnesium, zinc, strontium, barium, etc. is investigated. It is shown that the residual polarization increases with the growth of the polarizing field strength (E_{pol}) and the polarization temperature (T_{pol}), reaching values $>10^{-5}$ k/cm² at T_{pol} = 300°C and E_{pol} = 20 kv/cm. The relaxation times of the residual polarization were determined for different temperatures by the depolarization method. It was established that the residual polarization is practically unchanged over a year at room temperatures. The hypothesis is made that residual polarization in titanates of alkali-earth metals is caused by the capture of electrons by deep local levels in the polarization process. Resume.

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USSR

UDC [537.226+537.311.33]:[537+535]

GUBKIN, A. N., BIYNITSKIY, E. A., PUCHKOPOL'SKAYA, YE. T.

"Glass Electrets"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine Building), 1970, No. 8, pp 108-115 (from RZh Fizika, No 12, Dec 71, Abstract No 12Ye1155)

Translation: Correction methods and the properties of electrets of a pyroceramic of various compositions (cordierite, glass-porcelain, and placopyroceramic) and borosilicate glass with liquation are described. The physical nature of the residual polarization in the glasses and the role of the heterogeneous structure in the electret effect are discussed. Resume.

1/1

1/2   016   UNCLASSIFIED   PROCESSING DATE--02OCT70

TITLE--ELECTRETS FROM POLYMERIC FILMS -U-

AUTHOR-(04)-GUBKIN, A.N., YEGOROVA, T.S., KOKORIN, L.M., ZITSER, N.E.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970 12(3) 602-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ELECTRET, POLYMER FILM, POLYETHYLENE TEREPHTHALATE,
   POLYTETRAFLUOROETHYLENE, ELECTRIC POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0307   STEP NO--UR/0459/70/012/003/0602/0609

CIRC ACCESSION NO--AP0111501
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0111501

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. POLY(ETHYLENE TEREPHTHALATE) (I)
FILMS AND POLY(TETRAFLUOROETHYLENE) (II) FILMS WERE POLARIZED BY HEATING
TO 110DEGREES AND 135DEGREES, RESP., IN POLARIZING FIELDS FOR SIMILAR TO
1 HR AND THEN BY ALLOWING THEM TO COOL IN THESE FIELDS TO ROOM TEMP.
THE POLARIZATION, MEASURED BY THE RATIO OF THE INDUCED TO THE ORIGINAL
CHARGE D., PERSISTED FOR LARGER THAN OR EQUAL TO 8 MONTHS AND LASTED
LONGER FOR II THAN FOR I FILMS. THE POLARIZATION AND ITS DURABILITY
INCREASED WITH THE FILM THICKNESS AND THE POLARIZING FIELD STRENGTH.
WEAK HETEROCHARGING (SIMILAR TO 10 PRIME NEGATIVE10 COULOMB-CM PRIME2)
WAS OBSD. ONLY IN THE CASE OF I FILMS AT SMALLER THAN OR EQUAL TO 50
KV-CM FIELD STRENGTHS. IN THE CASE OF II THE FILMS HAD ONLY CHARGES OF
THE SAME SIGN. THE NEW EXPTL. AND THE LITERATURE DATA, GIVEN FOR OTHER
ELECTRETS, ARE DISCUSSED IN TERMS OF THE SWAN GUBKIN THEORY.

1/2   013   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--DIFFRACTION BACKSCATTERING -U-

AUTHOR--GUBKIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 598-600

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE DIFFRACTION, NUCLEAR STRUCTURE, NUCLEAR MODEL,
   ELASTIC SCATTERING, DIFFERENTIAL CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1070   STEP NO--UR/0367/70/011/003/0598/0600

CIRC ACCESSION NO--AP0110760
                         UNCLASSIFIED
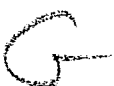
CIRC ACCESSION NO--AP0110760

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFRACTION BACKSCATTERING IS A CONSEQUENCE OF THE REFLECTION OF THE INCIDENT WAVE ON THE NUCLEUS SURFACE, WHICH IS CAUSED BY THE ABRUPT CHANGE OF THE WAVELENGTH PASSING FROM THE OUTER TO THE INNER SPHERE OF THE NUCLEUS. A MODEL REPRESENTATION OF THE SCATTERING COEFF. AS A FUNCTION OF THE ANGULAR MOMENTUM IS PROPOSED. THIS REPRESENTATION ENABLES ONE TO DESCRIBE THE DIFFRACTION STRUCTURE OF THE ELASTIC SCATTERING DIFFERENTIAL CROSS SECTION AT ANGLES CLOSE TO PI. THE MORE PRECISE APPROXN., CONSIDERING THE DIFFUSIVITY OF THE NUCLEUS BORDER, MUST BE TAKEN TO REACH AGREEMENT BETWEEN THEORY AND EXPTL. RESULTS.   FACILITY: LENINGRAD GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

1/2   017   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--PROTON POLARIZATION IN COULOMBIC STRIPPING REACTIONS -U-

AUTHOR--GUBKIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 373-81

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--COULOMB INTERACTION, PROTON POLARIZATION, WAVE FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1050   STEP NO--UR/0367/70/011/002/0373/0331

CIRC ACCESSION NO--AP0110740
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18OCT70

CIRC ACCESSION NO--AP0110740
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STRIPPING REACTIONS (D, P) AT L
SUBN EQUALS 0 ARE CONSIDERED IN CASES WHERE COULUMB EFFECTS PREDOMINATE.
THE METHOD OF TER MARTIROSYAN IS USED AS FORMULATED IN TERMS OF
PARTIAL WAVES. CONTRARY TO THE RESULTS OF OTHERS INVESTIGATORS, THE
POLARIZATION INDUCED BY THE MOTT SCHWINGER INTERACTION IS NEGLIGIBLE.
FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

GUBKIN, IVAN MIKHAYLOVICH   Geologist

TITLE--THE RISK RATE OF CARDIAC STANDSTILL IN THE SURGERY OR BURNED
   PATIENTS -U-

AUTHOR-(02)-ROSIN, L.B., GUBLER, YE.V.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP
   3-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIAC ARREST, SURGERY, THERMAL BURN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0919   STEP NO--UR/0481/70/000/003/0003/0006

CIRC ACCESSION NO--AP0126578
                         UNCLASSIFIED

CIRC ACCESSICN NO--AP0126578
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CARDIAC ARREST ON THE OPERATION
   TABLE IS 10 TIMES MORE FREQUENT IN BURNED CASES THAN IN OTHER SURGICAL
   PATIENTS. DETERMINATION OF PROBALITY OF SUCH A COMPLICATION IS
   THEREFORE OF IMPORTANCE. A PROGNOSTICATION METHOD IS DESCRIBED.
   CALCULATICNS ARE BASED ON ANALYSIS OF 22 CASES WITH CARDIAC ARREST AND
   ON 100 CASES WITHOUT SUCH A COMPLICATION.   FACILITY: KAFEDRY
   TERMICHESKIKH PORAZHENIY I ANESTEZIOLOGII VOYENNO-MEDITSINSKOY AKADEMII
   IM S. M. KIROVA, LENINGRAD.

UNCLASSIFIED

USSR   UDC 547.26'118

GUBNITSKAYA, YE. S., GAMALEYA, V. F., and SHOKOL, V. A., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"O,O-Dialkyl S-β-isocyanatoethyl dithiophosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, p 2112

Abstract: The title compound can be obtained by intramolecular thermal isomerization of O,O-dialkyl S-(N-ethylenecarbomoyl) dithiophosphates or by the Curtius reaction from O,O-dialkyl S-(β-azidocarbonylethyl) dithiophosphates.

1/1

USSR   UDC 546.183

GUBNITSKAYA, Ye. S., and DERKACH, G. I. (deceased), Institute of Organic
Chemistry, Academy of Sciences of the UkrSSR

"The Reaction of Acyl Azides With Triisocyanatophosphite"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 296-298

Abstract: Acyl azides react with triisocyanatophosphite to give N-aryl-N'-
-diisocyanatophosphinourethidindiones—2,4, which give tris(3-arylureido)-
phosphites when treated with aromatic amines. These phosphites are fairly
high-melting colorless crystals which are poorly soluble in ordinary organic
solvents. They do not react with carboxylic acid azides even after pro-
longed boiling in a dioxane solution.

1/1

USSR

GUBNITSKAYA, Ye. S., MATYUSHA, A. G., DERKACH, G. I. (deceased) Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Derivatives of Isocyanatophosphites"

Abstract: Acyl azides react with $(C_2H_5O)_2PNCO$ to form $RCON=P(OC_2H_5)_2NCO$ (I). The reaction rate is relatively slow. For instance, in benzene at room temperature, the reaction is completed after 5 days, whereas at $70-80°$ it is completed within 6-8 hrs. I are dense, viscous liquids and can not be vacuum distilled without decomposition. With aromatic amines and dilute hydrochloric acid, I yield N-phosphorylated ureas. The following ureas were prepared: AlkOPO(X)NHCONHAr, where (alk, Ar, X given) C_2H_5, $p-ClC_6H_4$, Cl; C_2H_5, C_6H_5, C_6H_5; iso-C_3H_7, C_6H_5, Cl; iso-C_3H_7, $p-ClC_6H_4$, Cl; iso-C_3H_7, $p-C_6H_4COOC_2H_5$, Cl; iso-C_3H_7, $p-C_6H_4COOC_2H_5$, $p-C_6H_4COOC_2H_5$; iso-C_4H_9, C_3H_5, Cl; iso-C_4H_9, $p-C_6H_4OCH_3$, Cl; C_6H_{13}, C_3H_5, Cl; C_6H_{13}, $p-C_6H_4OCH_3$, Cl; C_6H_{13}, C_6H_5, C_3H_5; C_6H_{13}, $p-C_6H_4OCH_3$, $p-C_6H_4OCH_3$.

1/1

UDC 547.26'118

USSR

GUBNITSKAYA, Ye. S., TISHCHISHINA, N. S., and KIRSANOV, A. V., Institute of
Organic Chemistry, Academy of Sciences, UkrainianSSR

"Derivatives of Dialkylphosphonic Acid Ethyleneamides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (105), No 4, Apr 73, pp 739-743

Abstract: Reaction of phosgene with ethyleneamides of dialkylphosphoric
acids leads to the formation of N-dialkylphosphono-N-(2-chloroethyl)carba-
minic acid chlorides which react with ammonia, amines, potassium salt of
diisopropylthiolthionephosphoric acid, and sodium azide to yield respective
derivatives. N-Dialkylphosphonoimidazolidenones-2 can be obtained by re-
acting N-dialkyl-phosphono-N-(2-chloroethyl)ureas with a base.

1/1

- 18 -

TITLE--EFFECT OF HEATING ON CATALYTIC AND ALLOSTERIC PROPERTIES OF
   GLUTAMATE DEHYDROGENASE IN BULL LIVER -U-

AUTHOR-(02)-YAKOVLEVA, V.I., GUBNITSKIY, L.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190)1

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CATALYSIS, LIVER, DEHYDROGENASE, ENZYME ACTIVITY, BIOLOGIC
   THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1087   STEP NO--UR/0020/70/190/001/0231/0234

CIRC ACCESSION NO--AT0115106
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0115106
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ENZYME IN PHOSPHATE
  BUFFER AT PH PRIME7 AND FREED OF SALTS BY PASSAGE THROUGH A SEPHADEX
  COLUMN WAS HEATED TO VARIOUS TEMPS. FOR 0.5 HR AND ITS ACTIVITY WAS
  STUDIED AFTER EXPOSURE TO TEMPS. FROM 39-49DEGREES. THE ACTIVITY
  DECLINED RATHER SHARPLY AFTER HEATING TO 41-3DEGREES. THE THERMAL
  TREATMENT FIRST AFFECTED THE ABILITY OF THE ENZYME TO UNDERGO ALLOSTERIC
  CHANGES, THEN THE CATALYTIC ACTIVITY DROPPED. HEATING WITH OR WITHOUT
  ADDED ADENOSINE DIPHOSPHATE (ADP) RESULTED IN VERY SIMILAR DEGREES OF
  DECLINE IN ACTIVITY BUT THE KINETIC CURVES HAD DIFFERENT SLOPES; IN THE
  PRESENCE OF ADP THE ALLOSTERIC REACTIONS WERE ALTERED AT LOWER TEMPS.
  THAN THEY WERE IN THE ABSENCE OF ADP.   FACILITY: MOSK. GOS.
  UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

GUBRIY, V. I., and MARKO, M. E.

"Nonlinear Problem of Cavity Flow Past a Lattice"

V sb. Materialy Vses. konferentsii po krayev. zadacham (Materials of Works), Kazan', Kazan' University, 1970, pp 87-93 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B804 by V. P. Vakhomchik)

Translation: The article considers the discontinuous flow of an incompressible inviscid fluid with constant velocity at infinity $v = v_\infty$ past an aerodynamic lattice with stagger angle β. The origin of coordinates is situated at the critical point of one of airfoils, which with the x axis constitutes angle α. The lattice airfoils are thin plates behind which cavities of finite width form. The cavity closes onto two vortices, behind which extends a wake on whose boundary velocity $v = v_0$ is constant. In order to determine flow parameters in the physical flow plane (flow pressure p and velocity v), the range of Joukowski functions $\omega = \ln(v/v_\infty) - i\theta$ (θ is angle of velocity inclination in its hodograph plane) and of complex potential $w = \varphi + i\psi$ are conformally mapped on upper auxiliary half-plane $\xi = \xi + i\eta$. An expression is obtained for complex potential w and function

1/2

USSR

GUBRIY, V. I., and MARKO, M. E., Materialy Vses. konferentsii po krayev
zadacham (Materials of Works), Kazan', Kazan' University, 1970, pp 87-93
(from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B804 by V. P. Vakhomchik)

ω through parametric variable ξ in the form of finite analytic formulas.
Unknown mapping constants are found from initial and boundary conditions.
The magnitude of flow pressure on the plate in quadratures is found. The
authors calculate the magnitude of normal flow pressure on the lattice
plate (pressure coefficient) for a stagger angle value $\beta = 90°$ as a function
of various values of relative lattice spacing, plate inclination angles
$\alpha = 5° \div 30°$ and cavity dimensions. The results of calculation are pre-
sented in the form of tables. The authors give no analysis of the results
of calculation.

2/2

UDC 621.384.664

USSR

GALYAYEV, N. A., GOLOVINA, N. I., GRACHEV, M. I., GRIDASOV, V. I., GUBRIYENKO,
K. I., YEREMENKO, Ye. V., ZAPOL'SKIY, V. N., ZELENOV, B. A., KOTOV, V. I.,
KUZNETSOV, V. S., MERKER, E. A., MYZNIKOV, K. P., PUCHUGIN, V. A., PRILEPIN,
A. A., SELEZNEV, V. S., SEREBRYAKOV, P. A., KHODYREV, Yu. S., and CHEPEGIN,
V. N.

"Proton Beam With an Impulse of Up to 70 Gev/s Elastically Dispersed Inside a
Target"

Abstract: This paper discusses the operation of a channel built into the
French liquid-hydrogen Mirabelle chamber for the accelerator of the Institute
of High-Energy Physics (IEVE). The function of the channel is to form pure
beams of pi and k mesons, and antiprotons, in a broad range of impulse magni-
tudes under the action of a high-frequency separator. The secondary particles
are generated on the inside of a target placed in the path of a proton beam
diverted from the accelerator with an energy of 70 Gev. By using a fast
system for aiming the proton beam at the target, together with a kicker magnet
in the channel, the required number of particles passing through the chamber
can be provided. The optical system of the channel is described with the

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USSR

aid of diagrams of two possible variants; the beam aiming system and the
particle dosage for the bubble chamber are also explained. The authors
thank R. M. Sulyayev, P. F. Yermolov, A. M. Moiseyev, M. I. Solov'yev,
I. A. Danil'chenko, Ye. A. Parshin, V. M. Kolesnik, A. M. Aleyev, V. D.
Rudko, and V. M. Gorshkov for their assistance.

2/2

UDC 621.384.634

USSR

ALEKSANDROV, I. A., FRACHEV, M. I., GUBRIYENKO, K. I., YERMENKO,
YE. V., KOTOV, V. I., NEKRASOV, A. N., PRILEPIN, A. A., PICHUGIN,
V. A., RSAYEV, R. A., SAMOYLOV, A. V., SELEZNEV, V. S.,
SEREBRSAKOV, B. A., KHANAMIRYAN, A. YE., and KHODYREV, YU. S.

"Negative Particle Channel With Momentum up to 60 Gigaelectron
Volts/Second"

Abstract: This article contains a description of a channel for
transporting negative particles generated in an internal accele-
rator target with momentum up to 60 fifaelectron volts/second
and an accelerated proton energy of 70 gigalectron volts. The
channel is designed so that for an accelerated proton energy
of 70 gigaelectron volts it can be adjusted to momentum in the
range of 40-60 gigaelectron volts/second. On reducing the energy
of the accelerated protons, the channel can be adjusted to lower
momentum. The lower limit corresponds to an accelerated proton
energy of 20 gigaelectron volts and is equal to 11.4 gigaelectron
volts/second.

The optical system of the channel and its characteristics

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USSR

ALEKSANDROV, I. A., et al., Atomnaya Energoya, Vol 29, No 1,
Jul 70, pp 29-34

are presented. The limiting solid capture angle of the secondary
particles by the channel is 32 microsteradians. The best re-
solution with respect to momentum is 0.3 percent without de-
creasing the pacture angle. The channel was investigated pri-
marily using a secondary beam with a momentum of p = 50 giga-
electron volts/second. The procedure for adjusting the channel
and the calculated data are described. The differences between
the calculated operating conditions of the elements and the
conditions after adjustment together do not exceed the errors
of the fringing field of the accelerator, the magnetization
curve, and the curve for calibrating the bypasses of the magnet.
On the whole, the beam parameters agree well with the calculated
data.

A detailed diagram of the channel layout is presented, and
graphs are presented for the radial position of the targets
and the production angle as functions of the momentum of the
secondary particles, the optical system of the channel and path
of the beams in the horizontal and vertical planes, the momentum
2/3

USSR

ALEKSANDROV, I. A., et al., Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 29-34

resolution of the channel, the beam profile with momentum of 50 gigaelectron volts/second in the parallel section and slit width of the aperture collimators of +20 mm and the pulse collimator +6mm, the beam profile with momentum of 50 giga-electron volts/second in the final representation on including the lens doublet, and the beam profile with momentum of 50 gigaelectron volts/second in the final representation on including a lens triplet.

3/3

AP0015872

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JPRS 49593

UDC 577.49

USSR

GUBSKIY, V. I. and GUBSKIY, L. V., Kharkov Institute of General and Emergency Surgery and Kharkov Medical Institute, Kharkov, Ministry of Health Ukrainian SSR

"Circadian Rhythms and Mechanisms of Circadian Circulation"

Moscow, Uspekhi Sovremennoy Biologii, No 1(4), 90-105

Abstract: The authors review the Soviet and foreign literature (over 100 items) on biological clocks, synchronization of the circadian rhythms by a time sensor, and properties of the central oscillatory mechanism, which is thought to be localized in the hypothalamic region. The rhythms of physiological functions are not superficial reactions to external influences. Rather, they involve the main processes and states underlying the existence of life itself. In the concluding section on applied aspects, the author cites some examples of what might be termed "chronopathology," i.e., disorders arising from a breakdown in the temporal coordination of physiological functions. Phase relations of the circadian rhythms should be taken into account in dynamic observations and in clincial and experimental studies.

19590825

USSR

UDC 577.49

GUBSKIY, V. I. and GUBSKIY, L. V., Kharkov Institute of General and Emergency Surgery and Kharkov Medical Institute, Kharkov, Ministry of Health Ukrainian SSR

"Circadian Rhythms and Mechanisms of Circadian Circulation"

Abstract: The authors review the Soviet and foreign literature (over 100 items) on biological clocks, synchronization of the circadian rhythms by a time sensor, and properties of the central oscillatory mechanism, which is thought to be localized in the hypothalamic region. The rhythms of physiological functions are not superficial reactions to external influences. Rather, they involve the main processes and states underlying the existence of life itself. In the concluding section on applied aspects, the author cites some examples of what might be termed "chronopathology," i.e., disorders arising from a breakdown in the temporal coordination of physiological functions. Phase relations of the circadian rhythms should be taken into account in dynamic observations and in clincial and experimental studies.

1/1

USSR

UDC 612.11.014.462.1

GUBSKIY, V. I., and YANOVSKAYA, L. G., Laboratory of Water-Salt Balance and Energy Exchanges, Kharkov Scientific Research Institute of General and Emergency Surgery

"Some Regular Changes in Osmotic Concentration of Blood After Exposure to Extreme Factors"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1970, pp 38-40

Abstract: Ether lowered total osmotic pressure in intact rats, but has no significant effect on the potassium and sodium concentrations of serum. Surgery after anethesia lowered osmotic pressure even more. Ether and surgery produced the opposite effects if the osmotic pressure was lowered beforehand by hydration. Shifts in the sodium and potassium concentrations did not parallel those in total osmotic pressure.

1/1

Acc. Nr.: AP0031215

Ref. Code: UR 0213

SOME REGULARITIES GOVERNING VARIATIONS OF OSMOTIC BLOOD CONCENTRATION IN EXPOSURE OF THE ORGANISM TO EXCEPTIONALLY STRONG EFFECTS

Gubskiy, V.I.; Yanovskaya, L.G.

Research Institute of General and Emergency Surgery, Kharkov

Ether anesthesia and operative interventions regularly produced a drop of the blood serum osmotic pressure. With preliminary reduction of osmotic concentration through hydration anaesthesia and operative traumas yielded an opposite effect. Variations in the sodium and potassium concentration were not parallelled by corresponding shifts in the summary osmotic pressure.

mK

2

REEL/FRAME

19691264

GUBSKIY, V. I. and GUBSKIY, L. V., Kharkov Institute of General and Emergency Surgery and Kharkov Medical Institute, Kharkov, Ministry of Health Ukrainian SSR

"Circadian Rhythms and Mechanisms of Circadian Circulation"

Abstract: The authors review the Soviet and foreign literature (over 100 items) on biological clocks, synchronization of the circadian rhythms by a time sensor, and properties of the central oscillatory mechanism, which is thought to be localized in the hypothalamic region. The rhythms of physiological functions are not superficial reactions to external influences. Rather, they involve the main processes and states underlying the existence of life itself. In the concluding section on applied aspects, the author cites some examples of what might be termed "chronopathology," i.e., disorders arising from a breakdown in the temporal coordination of physiological functions. Phase relations of the circadian rhythms should be taken into account in dynamic observations and in clincial and experimental studies.

1/1

USSR

UDC 669.715'721+669.715'3]:621.785

VASIL'YEVA, I. N., and GUDCHENKO, A. P.

"Effect of Heat Treatment of Aluminum Alloys on Their Porosity"

Tekhnol. legkikh splavov. Nauch.-tekhn. byul. VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of All-Union Institute of Light Alloys), 1971, No 4, pp 41-17 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1I716 by I. Yeroshenkova)

Translation of Abstract: The authors studied Al-Mg alloys with 3, 5, 8, 10% Mg and Al-5% Cu. The porosity of alloys that have undergone heat treatment increases in comparison with the as-cast state. and the size of individual pores and the degree of porosity development increase. In Al-10% Mg alloy the average pore size was 0.03-0.05 mm before heat treatment and 0.12-0.2 mm afterwards. Porosity depends on alloy composition. In Al-10% Mg alloy porosity increases four to sevenfold in comparison with Al-3-5% Mg alloys. The higher the initial gas content of the melt, the more porosity increases on heat treatment; and the higher the magnesium content, the higher the gas content. Porosity increases during heat treatment with an increase in the cooling rate of the casting during crystallization. One illustration.

1/1

USSR   UDC 669.71.042.6

GUDCHENKO, A. P., VASIL'YEVA, I. N.

"Effect of the Mold Moisture and Primary Gas Content of AL2 and AL9 Alloys on the Porosity and Tightness of the Castings"

Usadochn. protessv v splavakh i otlivkakh -- V sb. (Shrinkage Processes in Alloys and Castings -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 285-288 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G137)

Translation: An analysis of the results of studying the dependence of the tightness and mechanical properties of the alloys on the gas saturation of the melt, the mold moisture, and the thickness of the casting cross section is presented. A test procedure is given.

1/1

USSR   UDC 539.4

GUDCHENKO, V. M., LYUTTSAU, V. G.

"Structural Changes in the Surface Layers of ShKh-15 Steel Under a Pulsating
Contact Load"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of
Works), Moscow, "Nauka", 1971, pp 92-95 (from RZh-Mekhanika, No 3, Mar 72,
Abstract No 3V1459)

Translation: The change in the microhardness and structure of surface layers
of ShKh-15 steel under a pulsating contact load is discussed. The microstruc-
ture and rentgenographic studies showed that processes leading to phase changes,
an increase in carbon content, a change in the substructure dimensions, and the
development of microstresses reaching 30 kg/mm^2 is achieved in the zone of the
contact spot. The basic change in properties and structure occur under the
combined action of tangential and normal forces. Authors abstract.

1/1

USSR   UDC 615.919:591.145.2.615.918:58.615.9.576.8.097.29

ARTEMOV, N. M., KIREYEVA, V. F., and GUDENKO, N. A.

"Effect of Bee Venom on the Sugar Level in the Blood"

Translation: An increase in the concentration of reducing compounds by 14.9% and
of glucose by 29.8% was observed in the blood of rabbits 1.5 hours after they had
been injected with 5 mg/kg of bee venom (BV). After 4 hours the concentrations
were normal. For a BV dose of 1 mg/kg no change was noted in the above indicators.
Possible mechanisms for the change in glucose level in rabbits treated with BV
are considered. (11 references)

1/1

USSR

UDC 669.243.87

GUDIMA, N. V., CHEMLEV, V. A., BYKOVA, T. D., and ZOTKOV, O. M.

"Effect of Current Density on Production Cost in Electrolytic Nickel Refining"

Abstract: The production of nickel in electrolytic shops may be raised by increasing the number of electrolyzers, raising the current density, and simultaneously adjusting the principal operational parameters, such as nickel concentration, electrolyte salt composition, and the circulation rate. The optimum current density must be determined for each individual plant taking into consideration the specific process technology and changes in various items of expenditures as a function of current density. With the shop expenditures being a major portion (40--45%) of the total conversion cost, it was the objective of this paper to determine the correlation of current density and shop expenditures on the basis of report data of an electrolytic shop. It was also essential to establish the factors, other than current density, affecting changes in the absolute shop expenditures, eliminate these effects, and arrive at "net" (cleaned) expenditures. Depending on production volume, the items subject to changes are: within-plant transport, maintenance of basic facilities, current repairs, and depreciation.

1/2

- 41 -

USSR

GUDIMA, N. V., et al., Tsvetnyye Metally, No 3, Mar 70, pp 29-33

Within the period of analysis, the production volume at this specific shop was affected by the number of electrolyzers, current density, cathode surface, current yield, and extensive utilization of electrolyzers. Formulas are cited for determining shop expenditures as a function of current density. Calculation shows that an increase in current density from 241.3 amp/m^2 to 388.9 amp/m^2 and the resultant higher production volume made it possible to reduce the shop costs of 1 ton of cathodic nickel by 45.4%.

2/2

USSR

UDC 576.851.71.083.3.086.3

AVAKYAN, A. A., GUDIMA, O. S., and ALIMOV, Zh. A., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"An Electron Microscope Study of 'Rickettsia canada' in Tissue Culture Cells"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 3-7

Abstract: In vitro cultivation of R. canada, a new Rickettsia species isolated in 1963 serologically related to the typhus group, and the bacterium's ultra-microscopic structure are described. One- or 2-day cultures of trypsinized chick embryo fibroblasts on Medium No 199 and 10% bovine serum incubated at 35.5°C were infected with R. canada. Seven days later infected cells were passaged through fresh fibroblast cultures and observed under light, fluorescent, and electron microscopes. Reproduction was confirmed by these techniques and by guinea pig tests. R. canada was more similar to D. sibiricus than other representatives of the rickettsial group with respect to dimensions, intensity of fluorescence, number of individuals per cell, and cytoplasmic distribution. It was observed in two basic forms, active and resting, similar to those described for C. burneti, R. prowazeki, and D. sibericus. The active form dominated in newly infected cells while the resting form prevailed among

1/2

USSR

AVAKYAN, A. A., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii,
No 3, 1973, pp 3-7

damaged and dead cells. Intermediate forms were also observed. Individuals
could be divided into three types depending on the structure of inclusions --
amorphous-granular, striated, and crystalloid. The nature and function of such
inclusions remains unknown. They are presumed to be either different stages of
differentiation of the bacterium's nuclear component, or stages in development
of a rickettsial phage. Further research on this species is of interest to
human pathology and to studies on the evolution of the rickettsial group.

2/2

USSR   UDC 576.851.71.095.383

GUDIMA, O, S., Institute of Epidemiology and Microbiology imeni Gamaleya,
Academy of Medical Sciences USSR, Moscow

"The Cytopathic Effect of Rickettsiae (A Review)"

Abstract: Result of work in this field are reviewed on the basis of literature
data (51 references), with particular attention piad to studies of tissue
cultures infected with rickettsiac. The cytopathic effects produced by
rickettsiae of the typhus group (R. prowazeki, R. mooseri), the agent of Q-
fever (C. burneti), rickettsiae of the spotted fever group (D. rickettsi,
D. conori, D. sibiricus, D. acari), and the agent of tsutsugamushi fever (R.
tsutsugamushi) are treated in separate sections of the review. Results obtained
by Gudima et al on fluorescence microscopy and electron microscopy of the
effect of R. burneti and R. prowazeki on tissue cultures cells are discussed.
It is pointed out that rickettsiae, just like viruses, are obligatory cell
parasites, but do not interact with the cell genome. With the exception of
rickettsiae of the spotted fever group, which also affect the cell nucleus,
they act on the cytoplasm only. The cytopathic effect is due to deterioration
1/2

USSR

GUDIMA, O. S., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 39-44

of the cells because of mass propagation of rickettsiae in them, but in the case of D. rickettsi, a toxic effect is also involved. It was established by Gudima et al that on primary infection of a cell culture with rickettsia, infection of all cells usually does not occur. However, after a sufficient number of passages, a 100% infection occurs even in a cell system with low susceptibility. By employing specific cytopathic effects produced by rickettsiae (e.g., R. burneti), methods were developed for the titration of rickettsiae-infected materials on cell cultures under a microscope.

2/2

USSR

UDC 620.171.32:669.295

GUDKOV, S. I., LEBEDEV, D. V., and REZNICHENKO, V. V., Central Scientific
Research Institute of Ferrous Metallurgy

"Mechanical Properties of Oxidized Titanium Alloys at Low Temperatures"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1970, pp 23-26.

Abstract: An investigation was made to determine the effect of the oxidized layer
on the mechanical properties of titanium alloys in the presence of stress concen-
tration at -253 to 20°C. The chemical compositions of VT1-1, AT2, VT5-1, and VT
5-1 titanium alloys are shown in a table. The preparation of samples and the test
procedure are described. The sensitivity of alloys to stress concentration was
evaluated by the strength of cut samples, and by the sensitivity to cuts. The
expediency of surface strengthening of samples with strength concentrators, for
the purpose of improving their properties at cryogenic temperatures, is demon-
strated for the VT1-1 and AT2 alloys. Surface strengthening is not valid for
alloys whose plasticity decreases with temperature. 1 figure, 3 tables, 10
references.

1/1

AA0038810   G⸺   UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent ⅗/70

238138   MOULDED PLASTIC HEATING CYLINDER ensures
         uniform heating through homogenous mixing
by the core the surface of which has right and
left-hand grooves. The core carries a heating
element. 25.4.67. as 1150388/23-5, GUDIMCHIK, V.I.
and KHRISTOFOROV, R.V. (1.7.69) Bul. 9/20.2.69.
Class 39a⁻ Int. Cl. B 29f.

1

19740020

1/2   013   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--INCREASE IN THE ADHESIVE PROPERTIES OF BRAND V BLACK POROUS SOLE
   RUBBERS -U-
AUTHOR-(05)-GUDIMENKO, V.I., PUSHKOVA, V.V., SANDLER, G.A., KUZNETSOVA,
   V.A., MARKICHEVA, N.V.
COUNTRY OF INFO--USSR

SOURCE--KOZH.-OBUV. PROM. 1970, 12(5), 47-51

DATE PUBLISHED-------70

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TOPIC TAGS--RUBBER, VULCANIZATION, ADHESION, FOOTGEAR/(U)10IK RESIN

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CIRC ACCESSION NO--AP0140292
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140292
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT CONST. RUBBER COMPN. THE
ADHESION OF POROUS SOLE RUBBER TO CLOTH INCREASED WITH ITS D. THE D.
WAS VARIED BY CHANGING THE RELATIVE VULCANIZATION TIMES AT LOW AND HIGH
PRESSURES WHILE MAINTAINING THE TOTAL VULCANIZATION TIME CONST.
ALTERNATIVELY, THE D. WAS VARIED BY CHANGING THE AMT. OF THE BLOWING
AGENT (DINITROSOPENTAMETHYLENETETRAMINE).   THE ADDNS. OF RESIN 101K,
RESOTROPIN, OR RESORCINOL TO THE STD. RUBBER MIXES INCREASED THEIR
ADHESION TO CLOTH 20-60PERCENT WITHOUT IMPAIRING OTHER PROPERTIES.

UNCLASSIFIED

TITLE--CYTOPHOTOMETRIC DETERMINATION OF DNA IN PLASMOCYTIC NUCLEI OF THE
   SPLEEN IR RATS WITH HORMONE DEPENDENT TUMORS -U-
AUTHOR-(05)-UMANSKIY, YU.A., ANTONYUK, R.O., GUDIMLEVKOVICH, K.A., LYSYUK,
   L.P., ULYANOVA, T.N.
COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(5), 61-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DNA, SPLEEN, RAT, TUMOR, HORMONE, SPECTROPHOTCMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605007/F07 STEP NO--UR/0506/70/016/005/0061/0065

CIRC ACCESSION NO--AP0139929
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0139929
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FEMALE RATS (STRAIN WISTAR) WERE
CASTRATED AT AGE 2 MONTHS AND A PART OF THE OVARY WAS IMPLANTED IN THE
SPLEEN. IN 10 MONTHS AFTER THE IMPLANTATION, TUMORE OF VARIOUS
LOCALIZATION AND SIZE DEVELOPED; THE RATS WERE THEN KILLED AND THE DNA
CONTENT IN THE NUCLEI OF PLASMATIC CELLS OF THE SPLEEN WAS DETD.
CYTOSPECTROPHOTOMETRICALLY. THE DNA CONTENT DEPENDED ON TUMOR
LOCALIZATION WITH RESPECT TO THE SPLEEN. IN THE CONTROL ANIMALS,
ANIMALS WITH TUMORS IN THE SPLEEN, ANIMALS WITH TUMORS DEVELOPED IN
OTHER ORGANS BUT NOT IN THE SPLEEN, AND ANIMALS IN WHICH TUMORS DID NOT
DEVELOP, THE DNA CONTENT IN EACH NUCLEUS OF SPLEEN PLASMATIC CELLS WAS
2.84, 2.41, 5.09, AND 5.72 ARBITRARY UNITS, RESP.   FACILITY:
RES. INST. EXPTL. CLIN. ONCOL., KIEV, USSR.

UNCLASSIFIED

1/2   016   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--ASSESSMENT OF SOME ROENTGENOTOMOGRAPHIC SIGNS OF MITRAL STENOSIS
  AND MITRAL INCOMPETENCE -U-
AUTHOR-(05)-PUTOV, N.V., KOBLENTSMISHKE, A.I., GUDIMLEVKOVICH, V.N.,
  ROZHKOV, A.S., POSEVIN, D.I.
COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 1, PP 26-32

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, HEART SURGERY, DIAGNOSTIC MEDICINE

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DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0126   STEP NO--UR/0497/70/048/001/0026/0032

CIRC ACCESSION NO--AP0122392
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0122392
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   IN 100 PATIENTS SUBJECTED TO
   MITRAL COMMISSUROTOMY THE DEGREE OF STENOSIS OF THE LEFT
   ANTRIOVENTRICULAR ORIFICE AND MITRAL INCOMPETENCE WAS COMPARED WITH
   TOMOGRAPHIC SIZES OF THE LEFT BRANCH OF THE PULMONARY ARTERY AND LEFT
   ATRIUM.   IT WAS FOUND THAT SIGNIFICANT INCREASE (OVER 10.5 CM) OF THE
   LEFT ATRIUM DOES NOT CONTRADICT THE DIAGNOSIS OF TIGHT MITRAL STENOSIS
   AND INSIGNIFICANT MITRAL INCOMPETENCE, BUT THE ABSENCE OF SUCH AN
   INCREASE TESTIFIES, AS A RULE, AGAINST IMPORTANT MITRAL INCOMPETENCE.   A
   MARKED DILATATION OF THE PULMONARY ARTERY IS CHARACTERISTIC FOR TIGHT
   MITRAL STENOSIS, AN ABSENCE OF SUCH A DILATATION DOES NOT CONTRADICT THE
   DIAGNOSIS OF TIGHT MITRAL STENOSIS.   THERE WAS REVEALED A DISTINCT
   RELATION IN CONJOINT EVALUATION OF THE SIZES OF THE LEFT ATRIUM AND
   PULMONARY ARTERY.

Coatings

KORYUKIN, A. V., KOROLEV, A. YA., REYTLINGER, S. A., and A GUDIMOV, M. N.,
All-Union Institute of Aviation Materials

"Effect of the Adhesion Properties of a Polymer on the Formation and Gas
Permeability of Metallized Polymer Films"

Abstract: A study was made of the gas permeability of metal coated polymer
films, and the relationship of gas permeability to the magnitude of adhesion
of the metal layer to the polymer film was established. Aluminum coatings
were deposited on inert polymers PTFE (polytetrafluoroethylene) and (polye-
thylene) PE and polar polymers PI (polyimide) and (polyethyleneteraphthalate)
PETF where it was noted that the coefficient of gas permeability of the
aluminum coating was on the order of 1-3 times greater for the inert poly-
mers, which leads to the conclusion that inert polymers are more porous.
The greatest aluminum coating adhesion strength was noted on the polar poly-
mers (43.0 kgf/cm^2 for PETF and 20.7 kgf/cm^2 for PI). The low adhesive
strength of aluminum coatings on PTFE and PE polymers is due to the ease with
which the metal atoms can migrate to the substrate surface and form coarse
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USSR

KORYUKIN, A. V., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9,
No 6, 1973, pp 53-55

crystal structures with increased porosity. The adhesive strength of Al
films on inert polymers can be increased by modifying (chemically) the sur-
face layer on PTFE with a sodium-naphthalene complex and PE -- with a
chromium mixture to make the surface of these polymers functionally
adhesively active. Two tables, seven bibliographic references.

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Coatings

USSR   UDC 620.171.3:678.744.743

TKACHEV, V. I., BEYDER, E. YA., LITVIN, A. K., GUDIMOV, M. M., AND SOSHKO,
A. I., All Union Scientific Research Institute of Aviation Materials, Moscow,
Physico-Mechanical Institute Academy of Sciences UkrSSR, L'vov

Abstract: The optimum conditions for the heat treatment of steel, before
applying a polyethylene coating to increase its fatigue strength in an
aggressive corrosive medium, were investigated on 30KhGSNA steel specimens,
one part of which was coated with polyethylene. The composition of the
coated specimens was selected so as to eliminate the effect of the coating,
i.e., that the lasting quality of coated and uncoated specimens in air was
the same. The investigation results are analyzed by reference to tabulated
data, showing the longevity of coated and uncoated specimens in air, 30%
NaCl, and in normal H_2SO_4, at low and high tempering temperatures, and dia-
grams of the effects of tempering temperatures on two coefficients character-
izing the influence of the medium on the longevity relation in cycles of
coated and uncoated specimens. The investigations demonstrated that poly-
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